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10/542,075

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EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/542,075 | Applicant(s) WEICHART, JURGEN | |
| | Examiner Ram N. Kackar | Art Unit 1792 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13,15,16 and 19-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13,15,16 and 19-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/29/2009 has been entered.

Drawings

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

In this instance Fig 1-Fig 4 show the substrate being clamped to the carrier (See the clamp like protruding section of "frame 112" which appears to clamp the substrate 130 to carrier 120). However, according to claims the substrate is held to the carrier by adhesive and not by a clamp. The drawings must show this feature.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 3-11, 13, 15-16 and 19-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In this instance the limitation “carrier mechanically clamped in said frame” is new matter. Examiner recognizes that the applicant may have been motivated to do this amendment in view of the discussion during a telephone call. However it is now recognized that the substrate is not mechanically clamped and also that, the phrase “carrier mechanically clamped in said frame” is not supported by the specification.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In this claim recitation is made of releasing the substrate by short circuiting the carrier to chuck electrode. Firstly the substrate can be released only by removing the adhesive secondly the short circuit without removing voltage would short circuit the power supply to lead to a catastrophic damage.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3-5, 7-9, 11, 13, 15, 20-21, 23, 28-30 and 34 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tokisue et al (US 5258047).

Tokisue et al discloses one frame (5) with a clamped-in carrier (Fig 20 combination of dielectric 71 and conductor 20), where a substrate is secured over substantially its entire surface to the carrier. The substrate is clamped electrostatically on the carrier through another dielectric layer.

This carrier is further configured to be removably positioned adjacent a surface of a chuck electrode (Fig 20 16) so that said carrier and said chuck electrode together form an electrostatic chuck device wherein the conductive layer of said carrier (20) and surface of said chuck electrode (16) form two plates of a plate-type capacitor when positioned adjacently (See for example Col 8 line 14-43). Dielectric layer could comprise alumina as conventionally known.

Regarding the rejection as above, it is noted that the only function of the “frame” is to provide a conductive path to the conductive layer. It is noted that the conductive layer does not need any clamping to be attached to the dielectric carrier plate. It is also noted that the term

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“clamp” refers to a device which holds two parts together. In this case however, ‘carrier’ is only one part.

Therefore part (5) of Tokisue et al reads on the term ‘frame’ or is at least equivalent to claimed ‘frame’.

Regarding claim 4, it is a product by process claim. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps.

The dimensions of layers as claimed in claim 5 are obvious to be optimized for chucking force and mechanical strength.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6, 10, 19, 22 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokisue et al in view of Herchen (US 5737178).

Tokisue et al disclose all the limitations of these claims except commonly known elements of chucks used for semiconductor processing in a vacuum chamber as disclosed by Herchen.

Herchen discloses a vacuum chamber with an electrostatic chuck and RF power electrode where chuck electrode is insulated from RF power electrode and there is heat transfer gas between the substrate and chuck (Fig 1-3).

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Since these elements are required for plasma processing it would be obvious for one of ordinary skill in the art at the time of invention to chuck the carrier of Tokisue et al on the base as in Herchen.

11. Claims 16 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokisue et al in view of De et al (US 6491083) or Arita et al (US 2003/0037882) or Testsure Toya (US 6692221) or Kumar et al (US 6642127) or Jones (US 6497784).

Tokisue et al do not disclose using adhesive for holding the substrate on the carrier.

Adhesive is known for holding substrates or disk type devices like chuck as an alternative to electrostatic chuck or vacuum chuck.

Arita et al disclose adhesive to join dielectric layer 6a to substrate 6 while the combination works like a carrier to electrostatically attach to chuck electrode 3 (See for example Fig 2.

Similarly Testsure Toya discloses using adhesive to attach wafers to carrier plate (Col 1 lines 36-42),

Similarly, Kumar et al (Abstract), De et al (Fig 1) and Jones (US 6497784) disclose use of adhesive.

Therefore it would have been obvious for one of ordinary skill in the art to have used adhesive to attach substrate to carrier plate as an equivalent way which is also known for thermal conductivity.

Response to Arguments

Applicant's arguments filed 1/29/2009 have been fully considered but they are not persuasive.

Applicant's arguments regarding claim 16 and "carrier mechanically clamped in said frame" are addressed above. Relevant to this discussion is how the term "frame" is interpreted for this examination.

Applicant argues that bed (16) is never energized in a capacitive circuit with the substrate 1', and is not responsible for producing the attractive force between the conductive ceramic 20 and the substrate 1' and there is no teaching or suggestion in Tokisue that layers 16 and 20 are separable at all.

In response it is noted that the carrier 20 is held capacitively to chuck electrode 10 through dielectric 71. Substrate is also held capacitively. However to hold it through adhesive instead of capacitively, would have been obvious as being equivalent.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shima et al (US 6473288), Nagasaki et al (US 5886863) and Fujii (US 2003/0178638) disclose adhesive for thermal conductivity use.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ram N Kackar/
Primary Examiner, Art Unit 1792